

0950403 44404

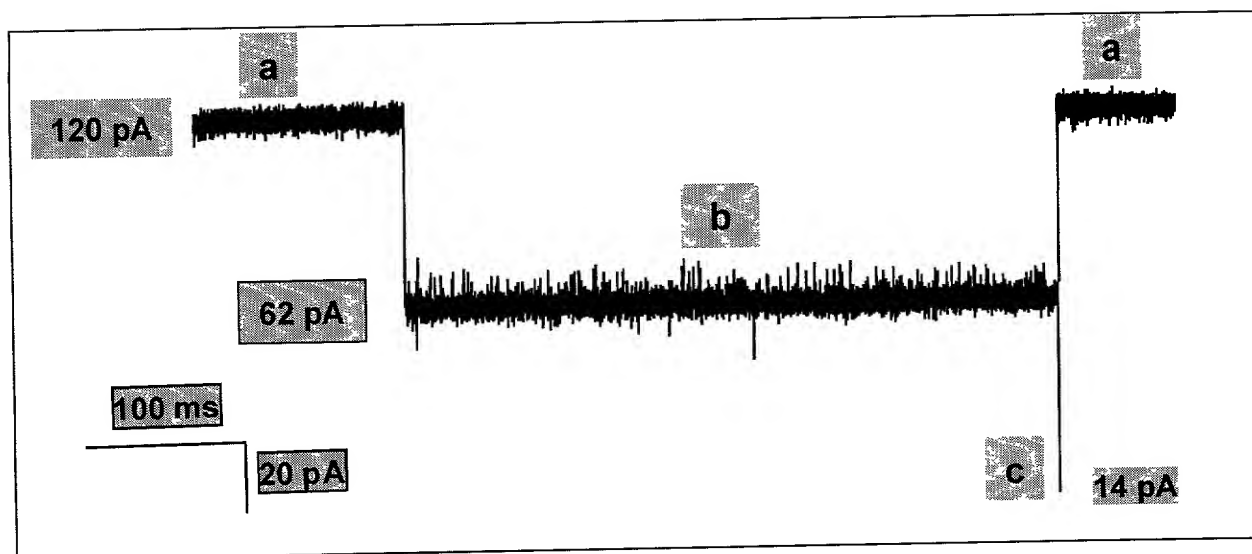


Figure 1

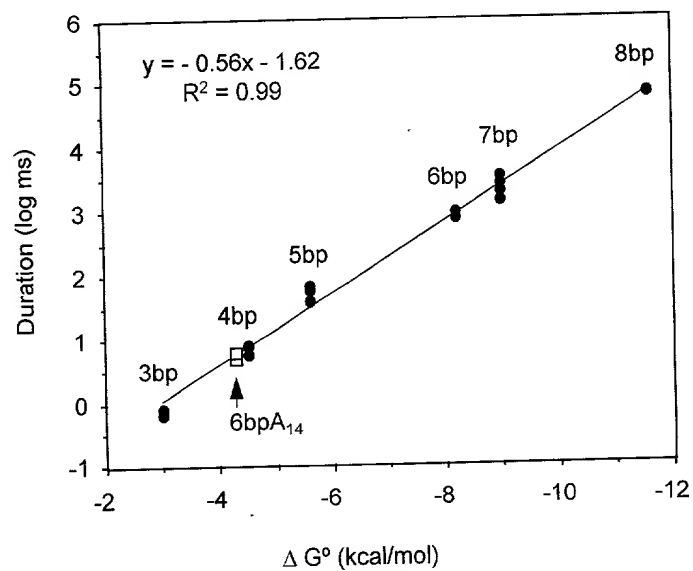


Figure 2

0950100 48044

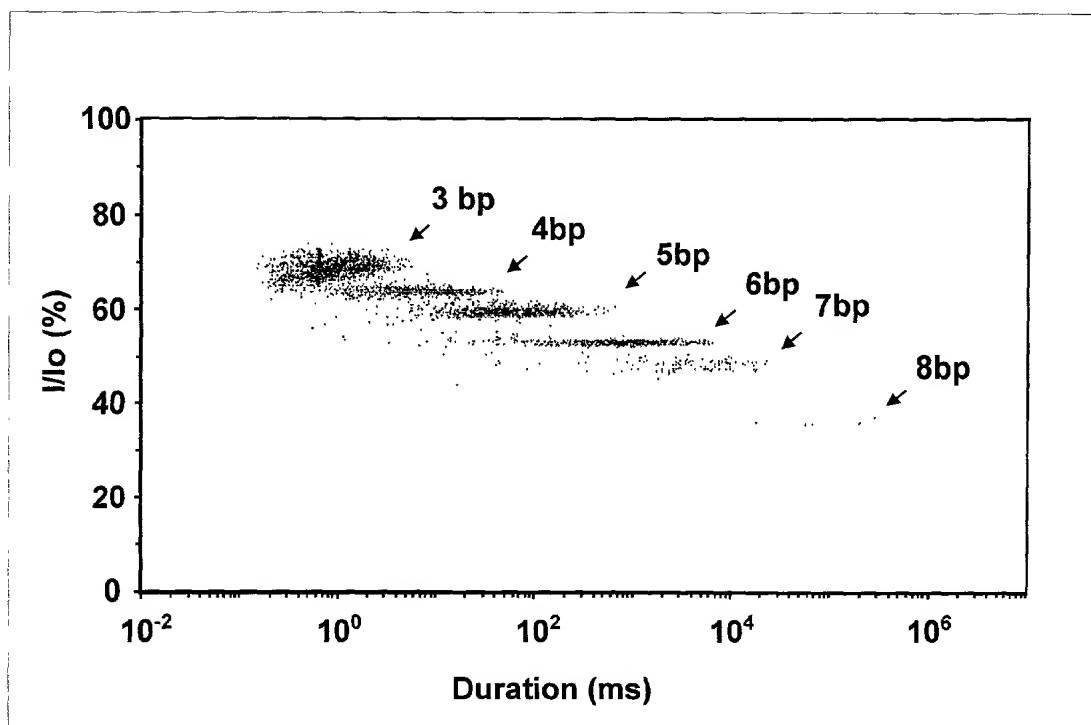


Figure 3a

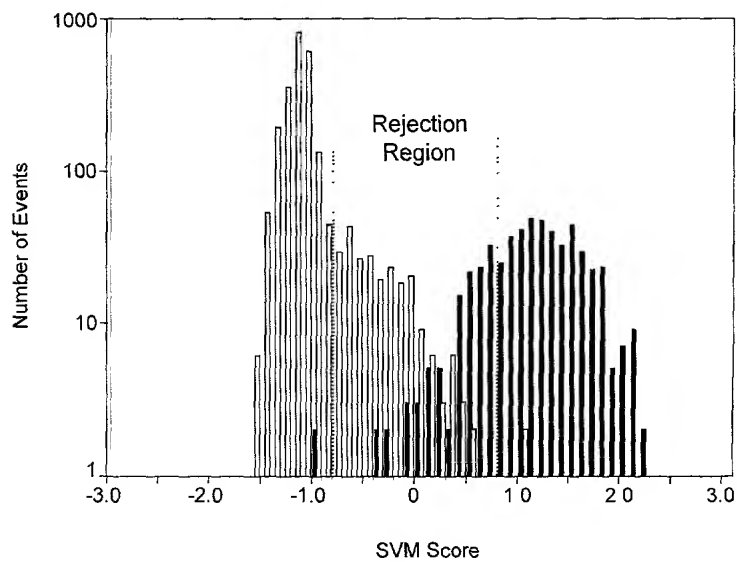


Figure 3b

T T  
 T T  
 G:C  
 C:G  
 A:T  
 A:T  
 G:C  
 C:G  
 T:A  
 T:A  
 C:G  
 5' 3'

T T  
 T T  
 G:C  
 C:G  
 A:T  
 A:T  
 G:C  
 C:G  
 T:A  
 T:A  
 T:A  
 5' 3'

T T  
 T T  
 G:C  
 C:G  
 A:T  
 A:T  
 G:C  
 C:G  
 T:A  
 T:A  
 T G  
 5' 3'

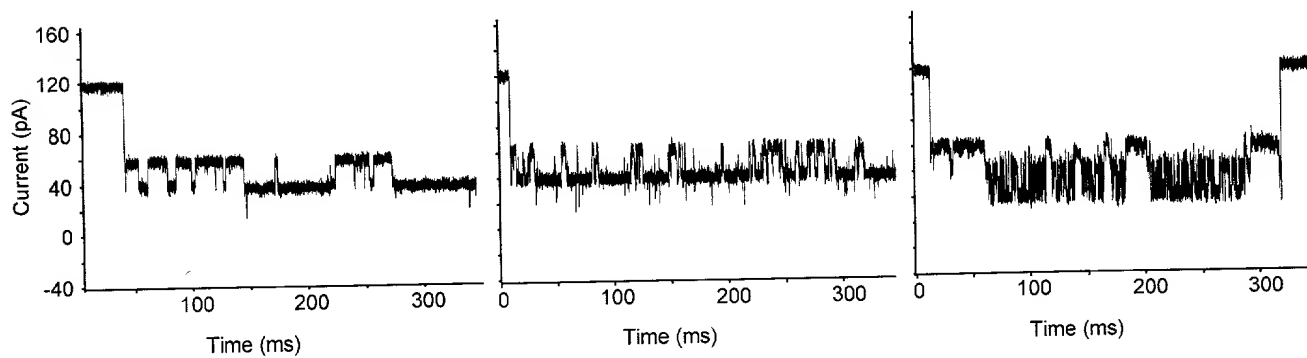


Figure 3c

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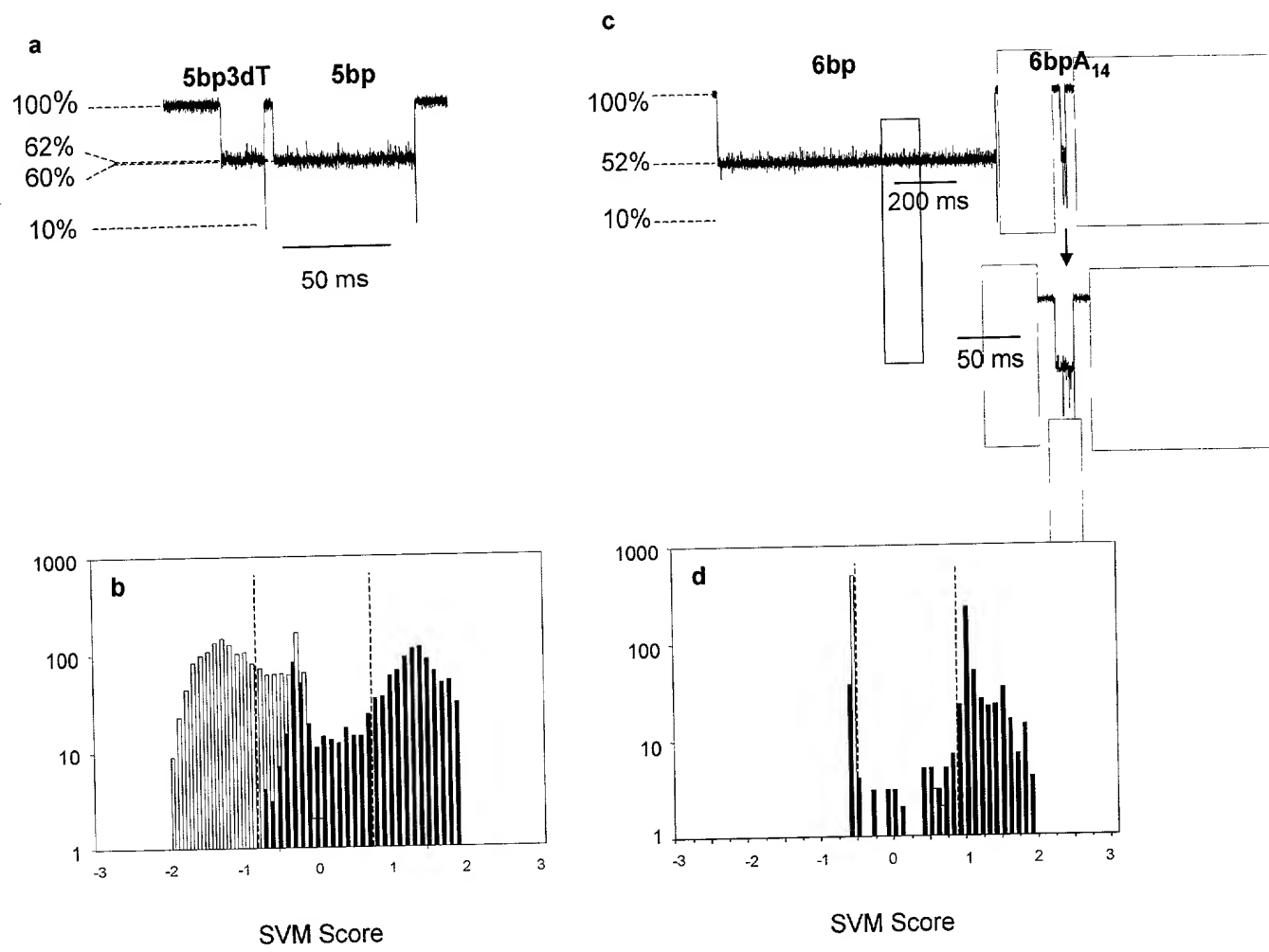


Figure 4

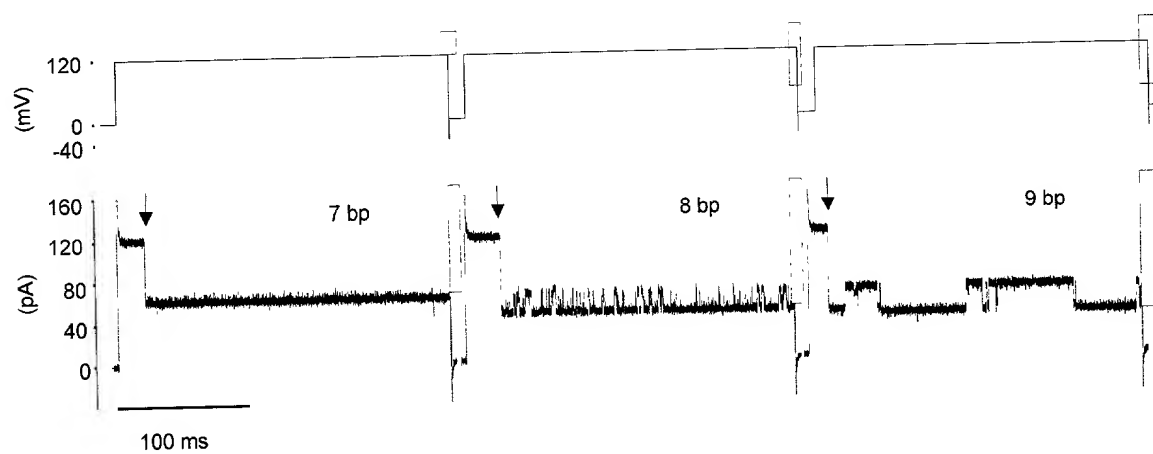
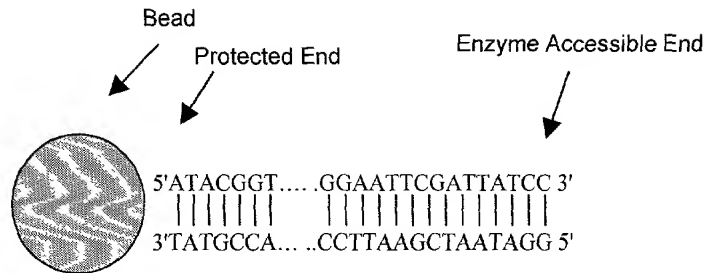


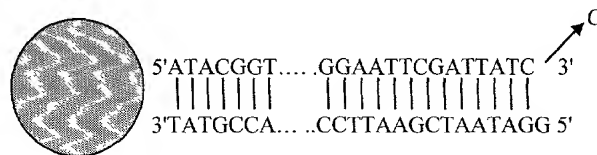
Figure 5

Figure 6.

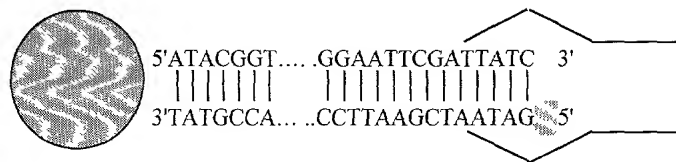
A) Blunt-ended DNAs are attached at one end to a bead.



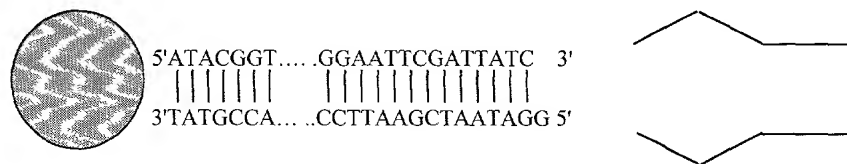
B) A single nucleotide is cut from the 3' end by a low processivity exonuclease such as exonuclease III.



C) The single nucleotide overhang at the 5' end is read when the duplex end is captured in the nanopore under an applied voltage.

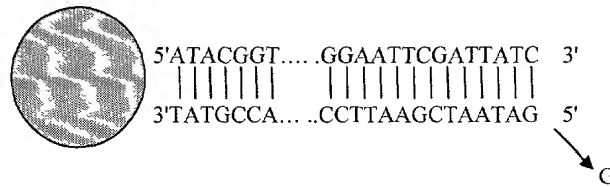


D) Once read, the DNA duplex is released from the nanopore by reversing the applied voltage.

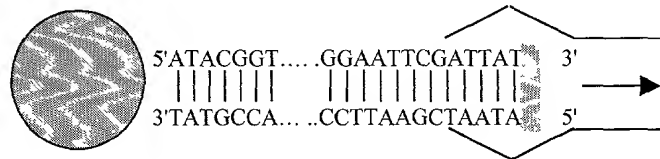




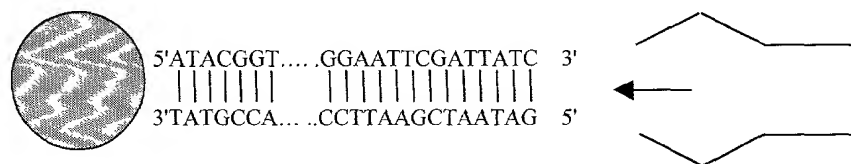
E) The single-nucleotide overhang is then cut with a nuclease (such as mung bean exonuclease), resulting in a blunt end.



F) The blunt end is then captured and held in the nanopore by an applied voltage. The terminal base-pair is identified while the duplex is captured.



G) Once read, the DNA duplex is released from the nanopore by reversing the applied voltage. The cycle is then repeated at step B).



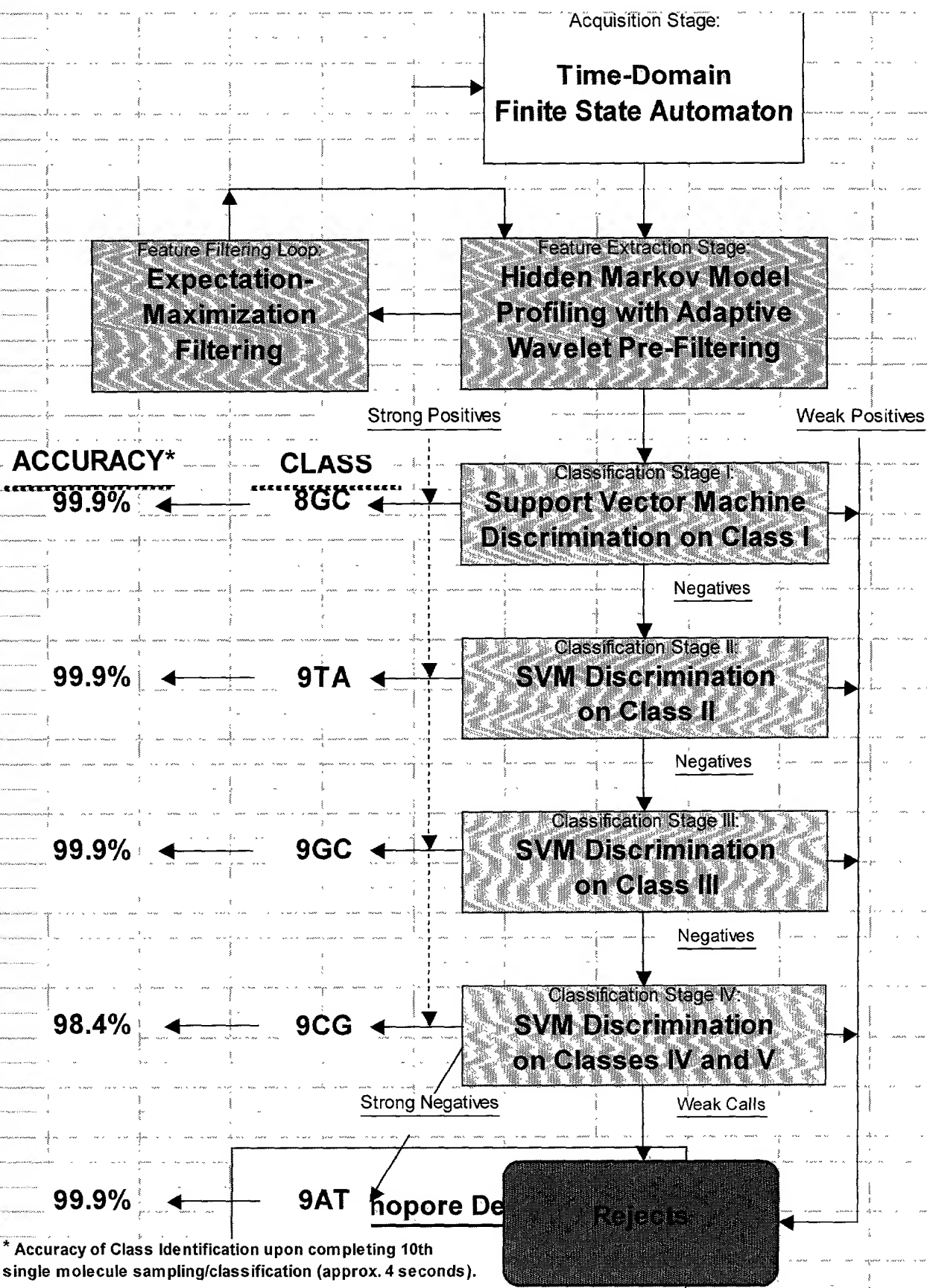


Figure 7

Figure 8

Table 1. DNA hairpins used in this study. Primary sequence reads from 5' end at bottom left to 3' end at bottom right. Each hairpin has a 9 base-pair-long stem, and a four dT loop. The terminal base-pair and its nearest neighbor are highlighted by a box. These are the base-pairs in closest proximity to the pore limiting aperture when a given hairpin is captured in the  $\alpha$ -hemolysin vestibule.

[illegible]

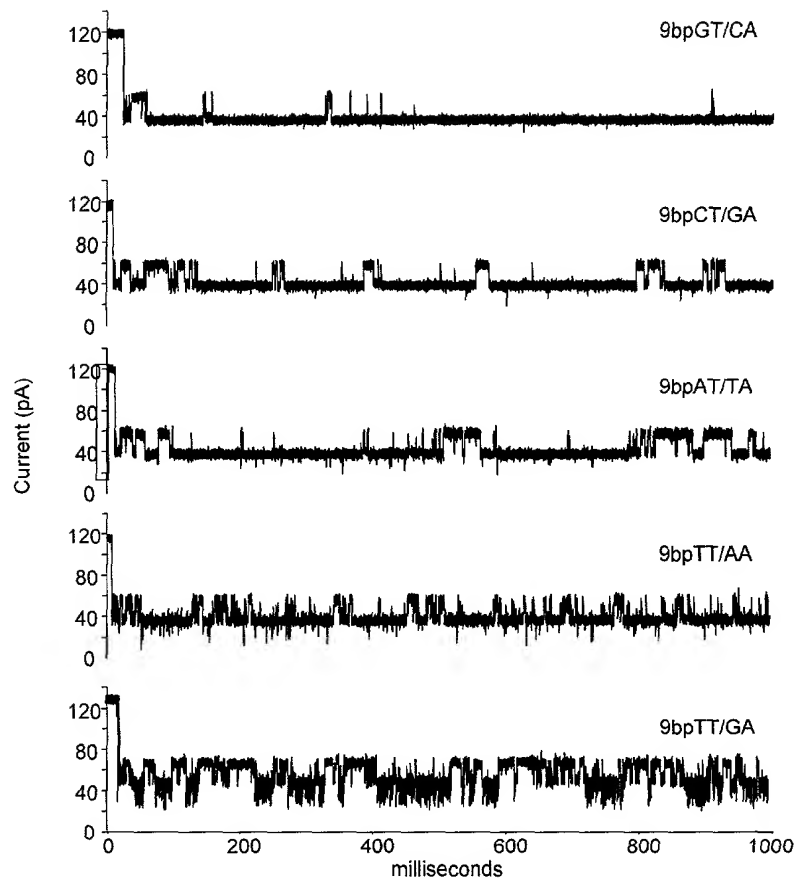


Figure 9

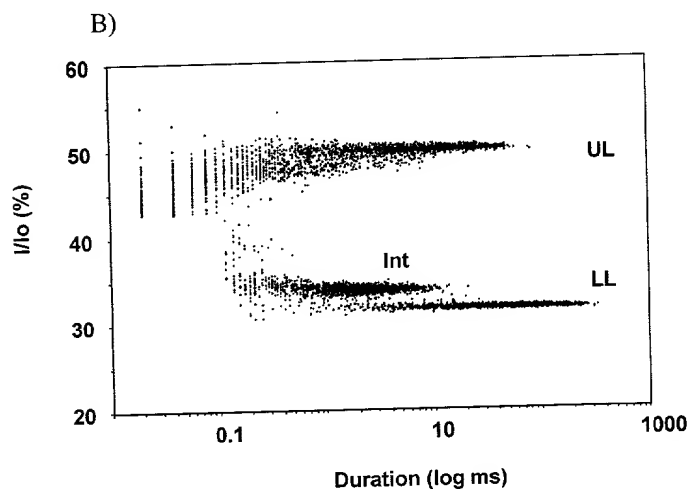
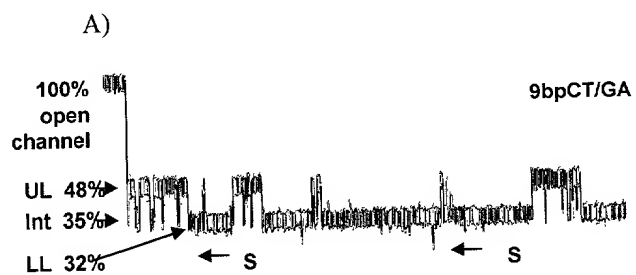


Figure 10

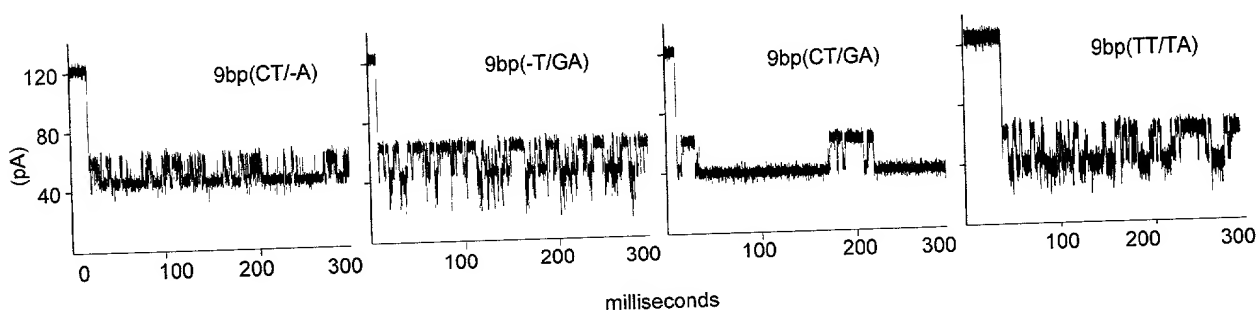


Figure 11

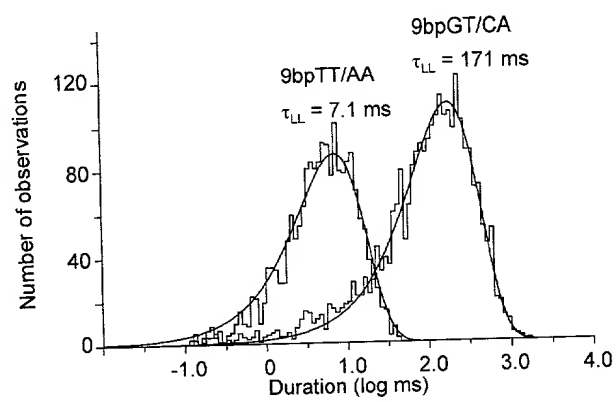


Figure 12

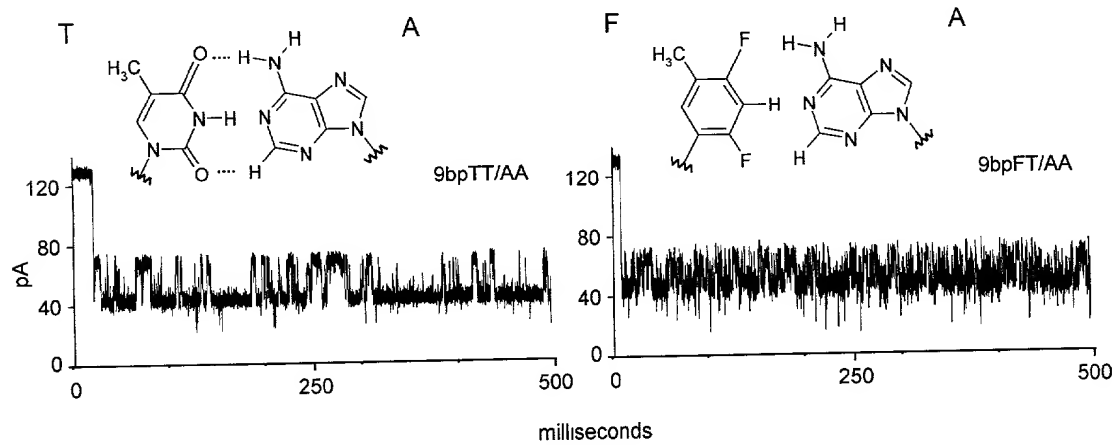


Figure 13



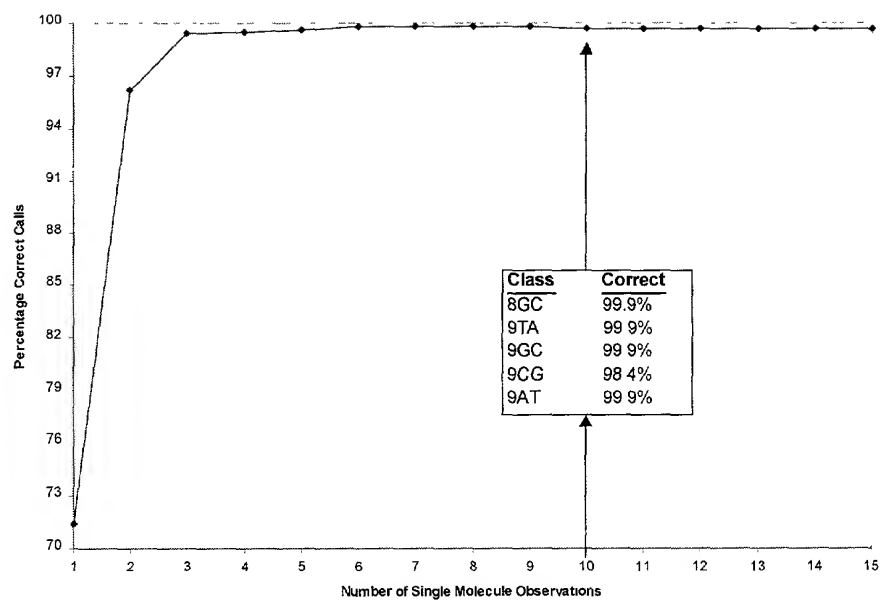


Figure 14

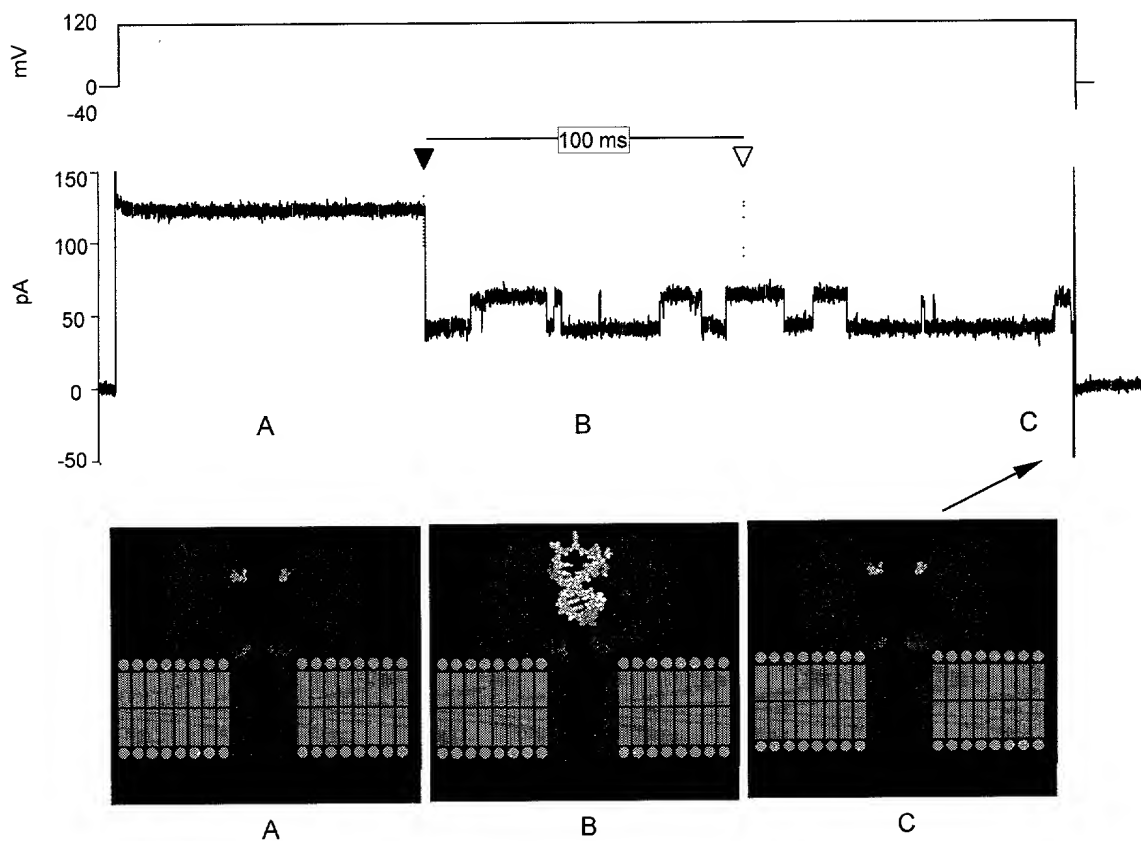


Figure 15.